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CLINICAL OBERVATION

Fatigue severity of patients with idiopathic chronic fatigue compared to healthy subjects

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Abstract

OBJECTIVE: To analyze the fatigue severity of patients with idiopathic chronic fatigue (ICF) and to compare the severity of this group with that of healthy subjects.

METHODS: one hundred and nine ICF patients and 98 healthy subjects were enrolled in this study. Fatigue severity was measured using the Korean-translated Chalder fatigue severity questionnaire. All subjects scored each item on a 10-point scale as a self-rating numeric scale (NRS), and additionally rated their feeling of general fatigue by visual analogue scale (VAS).

RESULTS: The total NRS scores of patients with ICF was 53 ± 15 compared with 25 ± 14 of healthy subjects (2.4 folds for physical symptoms vs. 1.7 folds for mental symptoms respectively). The VAS scores of patients with ICF were 2.7 times as high as those of healthy subjects.

CONCLUSION: This report is the first to compare the severity of fatigue between ICF patients and healthy subjects. This study contains reference data applicable for the management of this disorder in field of complementary and alternative medicine.

Key words: Fatigue syndrome, chronic; Pain measurement; Quality of life

INTRODUCTION

Chronic fatigue is a status of subjective tiredness, reported by nearly 10% of the general population worldwide.[1] In particular, medically unexplained chronic fatigue is an agonizing illness that impairs the normal quality of life to a significant extent.[2] However the etiology of the disease is poorly understood and no effective conventional medical therapies exist at present.[3] Therefore, people suffering from chronic fatigue often rely on Oriental medicine or complementary and alternative medicine, especially in Asian countries.[4]

Unexplained chronic fatigue is categorized into idiopathic chronic fatigue (ICF) and chronic fatigue syndrome (CFS). According to the Oriental medicine theory, ICF and chronic CFS are the state of unbalanced inter-functioning among the five major organs, or a condition of deficiency in the Chi and blood characteristics. Some clinical studies presented positive evidences of anti-fatigue effects of herbal remedy or acupuncture treatment.[5,6] While the characterization of fatigue severity is very important in management of patients with fatigue and investigation of anti-fatigue therapeutics, there are no objective biomarkers to assess the extent of subjective feeling-dependent manifestation. Furthermore, no studies to date have investigated the severity of fatigue at the time of patient consultation with the doctor.

We analyzed the fatigue extent of ICF patients visited a fatigue-care center compared to healthy population.

METHODS

Subjects and study design

We compare the fatigue severity between two groups, 109 ICF patients vs 98 healthy subjects. We enrolled patients visiting the chronic fatigue care center of Daejeon University Hospital, Daejeon, South Korea, from May 2009 to June 2010, who were mainly diagnosed with fatigue lasting six months. The patients displaying abnormalities in the laboratory or radiologic examination or meeting for CFS criteria[7] by Centers for Disease Control and Prevention were excluded from the study. In addition, night worker, alcoholic drinker over twice per week, and obese>30 of body mass index were excluded, and then 109 ICF patients (67 male and 42 female, median age of 40.5 years, range, 14 to 72 years) were selected. Ninety eight healthy subjects (27 male and 71 female, median age of 43 years, range, 19 to 65 years) displaying no subjective trouble or abnormal range in the laboratory or radiologic examination constituted the control group. Informed consent was obtained from each subject, and the ethical committee of Daejeon University Hospital approved the study protocol (authorisation number: DJOMC36).

Assessment of fatigue severity by chalder fatigue scale

Fatigue severity was measured using Korean-translated Chalder fatigue severity questionnaire[8] after slight modification of the scoring method. The survey consisted of seven physical health-related (1st to 7th) and four mental health-related questions (8th to 11th) as follows: 1) How tired do you feel? 2) How strongly do you currently feel the need to rest? 3) How sleepy or drowsy do you feel? 4) Do you have problems starting things? 5) Are you lacking energy? 6) Do you have less strength in your muscles? 7) Do you feel weak? 8) Do you have difficulty concentrating? 9) Do you have problems thinking clearly? 10) Do you make slips of the tongue when speaking? 11) How is your memory?

All subjects scored each item on a 10-point scale (0= not at all to 9=unbearably severe condition) as a self-rating numeric scale (NRS).

Assessment of fatigue severity by visual analogue scale

In order to rate the general feeling of fatigue in two groups, the ICF patients and healthy subjects were asked to draw a vertical line on a 10 cm bar (0 cm=not at all to 10 cm=unbearably severe condition) as a visual analogue scale (VAS).

Statistical analysis

The average of each item score, subtotal for physical NRS and mental NRS, and VAS measurement between ICF patients and healthy subjects was analyzed by student *t*-test using PASW Statistics 17 program.

RESULTS

Fatigue severity of ICF patients

The average score of fatigue severity for 11 symptoms was 5±1. The score was slightly higher than midpoint (4.5) indicating that ICF patients complain their symptom over than moderate degree. Eight items of 11 fatigue-related symptoms were heavier than midpoint while the scores for three items (all from 4 mental symptoms) were lower than midpoint (Figure 1). The VAS score was 7.4 indicating that the general fatigue feeling was near to top 74% of unbearable degree of fatigue (Figure 1 and Table 1).

Comparison between ICF patients and healthy subjects

The total NRS score of ICF patients was 53±15 while healthy subjects' score was 25 ± 14. The patients' subtotal score for physical NRS and mental NRS were 38 ± 10 and 15 ± 8 compared to 16 ± 10 and 9 ± 6 in healthy subjects respectively. Ten-items showed a statistical significance between two groups as $P<0.001$ while tenth question for speaking difficulty was $P<0.005$. VAS average score of was ICF patients was 7±2 while healthy subjects' score was 3±1 (Table 1).

DISCUSSION

Medically unexplained chronic fatigue is frequently problematic because of lack of its etiology and patho-physiologic mechanisms. One study reported that 20% of visitor with chronic fatigue to primary family clinics had no explaining medical causes.[9] No standard of treatment has yet been defined in conventional medicine; so chronic fatigue is one of the most common complaints treated by alternative complementary therapies in US.[10]

The characterization of severity or factors affecting ICF and CFS is fundamental in patient management and development of anti-fatigue therapeutics. Thus far, no studies have examined the severity of the fatigue experienced at the time of the patient consultation with the doctor. It is estimated that ICF is about 10-times more prevalent than CFS.[11] In present study, we analyzed the fatigue severity of ICF patients visited a fatigue-care center compared to healthy population. We used the 10-point scale for eleven questions to yield a possible range of scores of 0 to 9 (total maximum 99 from eleven questions).

The fatigue intensity of patients with ICF (total NRS score 53.0) was slightly over than middle point of worst symptom status (total score 99), which is similar pattern with other report from 100 patients even though they used different measurement scale.[12] Our result also presented that ICF patients have physical-dominant fatigue symptom. The physical NRS score was over midpoint (37.7 of maximum 63

from seven questions) while mental score was below than midpoint (15.3 of maximum 36 from four questions). Using same questionnaire instrument, we attained level of fatigue symptoms from healthy subjects. The fatigue severity level of ICF patients was 2.1-folds (2.4 folds for physical symptoms vs. 1.7 folds for mental symptoms respectively) compared to healthy subjects. The symptoms of thinking difficulty (question 9) and speaking trouble (question 10) were not relatively serious compared with others symptoms of patients with ICF. VAS score expressing overall fatigue feeling of ICF patients was 2.7-folds of the healthy subjects (7.4 vs 2.7). This result might mean that the general fatigue feeling (VAS score 2.7-folds) was more rigorous than single symptom score from NRS rating (2.1-folds).

The prevalence and severity of ICF and CFS would vary according to ethnicity and psychosocial factors.[13] Moreover, because chronic fatigue is a manifestation of subjective feelings, objective measurement of the severity of fatigue is difficult. Such measurement is, nonetheless, very important for treatment of patients with unexplained chronic fatigue.[14,15] Our result has limitation such as small number of patients studied and not multi-center survey. However, our result produced reference data applicable for future studies, thus it would help to care the patients with chronic fatigue and facilitate investigation of anti-chronic fatigue therapeutics using Oriental medicine or complementary and alternative medicine.

Taken together, the current report is the first to compare the severity of fatigue between ICF patients and healthy subjects.

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